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EXAMINER

RIDLEY, BASIA ANNA

ART UNIT PAPER NUMBER

1764

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/581,384	Applicant(s) MUHLEN ET AL.	
	Examiner Basia Ridley <i>BR</i>	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 55-109 is/are pending in the application.
- 4a) Of the above claim(s) 65-69, 83-90, 96, 98 and 99 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 55-64, 70-82, 91-95, 97 and 100-109 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. In response filed on 13 August 2004 applicant has stated that claim 86, while withdrawn from further consideration, forms a part of the elected invention, but the applicant did not distinctly and specifically present any arguments to support said statement. Said claim 86 is still withdrawn from consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species, there being no allowable generic or linking claim. The restriction requirement is still deemed proper and is therefore made FINAL.

Response to Amendment

2. In amendment filed on 13 August 2004 claims 55, 57-62, 65-78, 83-84, 87-88, 91, 94, 96, 99-103, 105 and 108-109 were amended, as shown by the claim listing, even though first paragraph on page 18 of said amendment states that only claims 55, 57-62, 69-78, 91, 94, 100-103, 105 and 108-109 were amended.

3. While claim listing lists claims 69 and 86 as "Currently Amended" and "Previously Presented", respectively, both of said claims are actually withdrawn from consideration.

Claim Rejections - 35 USC § 112

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 55-64, 70-82, 91-95, 97 and 100-109 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically:

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- claim 55 recites “to at least partially cause said organic containing substances (...) to react (...)” (lines 7-8), “a majority of said solid residue” (line 11), “at least partially form a waste gas” (lines 12-13), emphasis added; combination of terms “at least partially” and “a majority” with other limitations (as set forth above) are not supported by original specification;
- claim(s) 63-64 and 104 recite “corundum” as a catalytic material, which is not supported by the original specification, because the original specification only discloses corundum in combination with nickel or nickel oxide as a catalytically active material (P6/L17-18);
- claims 71-72 and 108 recite carrier medium including “a non-organic material”, which is not supported by the original specification, because the original specification only discloses that the heat carrier medium must have sufficient mechanical, chemical and thermal stability and provides some examples of such materials, but it does not limit said carrier medium to non-organic materials (P5/L28-P6/L2);
- claims 71-72 and 108 recite heat carrier medium including “corundum and nickel” and “corundum and nickel oxide”, which is not supported by the original specification; while the original specification discloses that catalyst used for cracking can be also used as a heat carrier medium (P4/L1-13) it only discloses that corundum with nickel or nickel oxide can be used to make heat exchanger pipes having catalytic properties (P6/L17-20); the original specification does not disclose the corundum with nickel or nickel oxide catalyst which can be passed together with solid residue into the firing as required by the heat carrier medium;
- claim(s) 73-74 recite the heat carrier medium having “a maximum width of 1-40mm” which is not supported by original specification, because the original specification only discloses heat carrier medium having “an average grain size of 1-40mm” (P6/L9), emphasis added;
- claims 83-84 recite “said catalyst is partially fed” (lines 1-2), which is not supported by original

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specification, emphasis added;

- claim 91 recites “at least partial pyrolysis” (lines 5 and 5-6), “at least partially solid carbon containing residue” (lines 7-8 and 10), “a majority of said solid carbon containing residue” (line 9), emphasis added; combination of terms “at least partial”, “at least partially” and “a majority” with other limitations (as set forth above) are not supported by original specification;
- claim 97 recites “at least a partial reaction” (lines 1-2), which is not supported by original specification, emphasis added;
- claim 101 recites “at least a partially reacted” (lines 2-3), which is not supported by original specification, emphasis added.

Double Patenting

6. Applicant is advised that should claims 55 and/or 80 be found allowable, claims 81 and/or 82, respectively, will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 91, 93-95, 101-103 and 105-107 are rejected under 35 U.S.C. 102(b) as being anticipated by Deglise et al. (USP 4,568,362).

Regarding claims 91, 93-95, 101-103 and 105-107 Deglise et al. discloses method of gasifying organic containing materials comprising:

- feeding the organic containing material into a pyrolysis reactor, said organic containing material

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exposed to a heat carrier medium in the pyrolysis reactor to cause at least partial pyrolysis of said organic containing material, said at least partial pyrolysis of said organic containing material forming at least two pyrolysis products, said at least two pyrolysis products containing pyrolysis gas and at least partially solid carbon containing residue (abstract & drawing);

- feeding a majority of said solid carbon containing residue and said heat carrier medium into a firing, said at least partially solid carbon containing residue heated in said firing and forming waste gas and ash, said heat carrier medium being heated by said firing (C2/L67-C3/L23 and drawing);
- feeding at least a portion of said ash and said heated heat carrier medium from said firing to said pyrolysis reactor, said ash and said heated heat carrier medium being combined with said organic containing material in said pyrolysis reactor (C2/L27-C4/L5 and drawing);
- feeding said pyrolysis gas into a gas reactor to produce a product gas having a high caloric value (C2/L27-C5/L3); and
- directing at least a portion of said waste gas from said firing to said gas reactor to at least partially heat said pyrolysis gas in said gas reactor (C2/L27-C5/L3);
- wherein said pyrolysis gas includes condensable substances (abstract);
- including the step of feeding a reactant into said gas reactor with said pyrolysis gas, said pyrolysis gas reacting with said reactant in said gas reactor (C2/L27-C5/L3);
- wherein said reactant includes steam (C2/L27-C5/L3);
- wherein said pyrolysis gas that is fed into said gas reactor is at least partially reacted at temperature of 900-1000°C (C4/L5);
- including the step of pretreating said organic containing material prior to feeding said organic containing material into said pyrolysis reactor, said pretreating step including a step of drying said organic containing material (C1/L54-C2/L35);

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- wherein said pretreating step includes a step of pulverizing said organic containing material (C1/L54-C2/L35);
- including the step of dedusting pyrolysis gas prior to being fed into said gas reactor (C2/L67-C3/L11);
- including the step of firing at least a portion of said pyrolysis gas to produce heat and using said heat in a process selected from the group consisting of said pyrolysis, said reaction of said pyrolysis gases with said reactant or combinations thereof (C1/L54-66);
- wherein said firing includes a grate firing (drawing).

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. Claims 55, 59, 75, 77, 79 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362) in view of Olsen et al. (Unit Processes And Principles Of Chemical Engineering).

Regarding claims 55, 59, 75, 77, 79 and 81, Deglise et al. discloses method of gasifying organic substances and/or mixtures comprising:

- feeding said organic substances and/or mixtures into a pyrolysis reactor and moving said organic substances and/or mixtures through said pyrolysis reactor (abstract and drawing);
- maintaining the organic substances and/or mixtures in contact with a heat carrier medium so that rapid pyrolysis takes place to at least partially cause said organic substances and/or mixtures to react into pyrolysis products, said pyrolysis products containing a solid residue and pyrolysis gases, said pyrolysis gases including a condensable component, said solid residue including carbon (abstract);
- feeding a majority of said solid residue and the heat carrier medium into a firing in which said

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solid residue containing carbon is fired to at least partially form a waste gas and ash (C2/L67-C3/L23 and drawing); wherein

- said heat carrier medium is fire-resistant material having a sufficient mechanical, chemical and thermal stability at a temperature of at least 600°C (abstract, C4/L35-C5/L3);
- directing at least a portion of heat generated from said firing into said pyrolysis reaction, said generated heat at least partially heating said heat carrier medium (C2/L27-C4/L5);
- feeding said pyrolysis gases and a reactant into a second reaction zone that is at least partially heated by a heat exchanger to form a gas product having a high caloric value, said heat exchanger at least partially supplying heat from said firing (C2/L27-C5/L3); and
- removing said ash from said firing and at least partially feeding said ash into said pyrolysis reactor (C2/L27-C4/L5 and drawing); wherein
- said reaction of said pyrolysis gases with said reactant in said second reaction zone is carried out at a temperature of 900-1000°C (C4/L5);
- said pyrolysis gases include tar (abstract);
- including the step of dedusting said pyrolysis gases prior to combining said pyrolysis gases with said reactant (C2/L67-C3/L11);
- including the step of firing at least a portion of said pyrolysis gas to produce heat and using said heat in a process selected from the group consisting of said pyrolysis, said reaction of said pyrolysis gases with said reactant or combinations thereof (C1/L54-66).

Deglise et al. discloses that an indirect heat exchanger at least partially supplying heat from the firing (waste gases) is used to provide heat to the second reaction zone (as set forth above).

Further, the reference discloses that the waste gas after providing some of its heat to the refractory particles, and therefore indirectly to the second reaction zone still has heat available which can be

further recovered through indirect heat exchange (C2/L15-17 and C4/L21-29). While the reference does not disclose said indirect heat exchanger being used to further heat the second reaction zone, it was well known in the art at the time the invention was made that great economies can often be affected by knowing where in the process heat is produced and where said produced heat can be used to improve process efficiency and to minimize waste therefore whether or not such heat is wasted or recovered (and how it is recovered) is purely a matter of comparative cost of recovering it and its worth (see Olsen et al., pages 1-3). Therefore, as the instant specification is silent to unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to pass said waste gas through an indirect heat exchanger for providing heat to the second reaction zone for the purpose of improving process efficiency and minimizing process waste.

11. Claims 61 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362) in view of Olsen et al. (Unit Processes And Principles Of Chemical Engineering), as applied to claims 55 above, and further in view of Velcich (USP 5,262,577) or Rudolph et al. (USP 3,738,103).

Regarding claims 61 and 63, Deglise et al. in view of Olsen et al. disclose all of the claim limitations as set forth above, but the references do not disclose reacting said pyrolysis gases with said reactant in the presence of a catalyst, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, or mixtures thereof.

Velcich (abstract and C1/L67-C2/L2) or Rudolph et al. (C4/L14-24) teach that reaction of pyrolysis gases with a reactant is improved when it is conducted in presence of catalyst including material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite,

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corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, or mixtures thereof. Therefore, use of said catalyst in the second reaction zone of Deglise et al. would be obvious to one of ordinary skill in the art, because it would amount to nothing more than a use of a known catalyst for its intended use in a known environment to accomplish entirely expected result.

12. Claims 71 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362) in view of Olsen et al. (Unit Processes And Principles Of Chemical Engineering), as applied to claims 55 above, and further in view of Meunier (USP 4,423,558).

Regarding claims 71 and 73, Deglise et al. in view of Olsen et al. disclose all of the claim limitations as set forth above. Additionally Deglise et al. discloses that said pyrolysis reactor is analogous to that described in French Patent No. 2,436,954 (C2/L27-36). Meunier belongs to the same patent family as said French Patent. While Deglise et al. discloses that the heat carrier medium comprises refractory particles (abstract) the reference does not explicitly disclose said particles selected from the group consisting of sand, gravel, split, aluminum silicate, corundum and nickel, corundum and nickel oxide, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof.

Meunier teaches that particles selected from the group consisting of sand, gravel, split, aluminum silicate, corundum and nickel oxide, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof are advantageously used as the heat carrier medium in the fluidized bed pyrolysis reactor, wherein said particles have maximum width of about 1-40mm (C6/L43-59). Therefore, use of said particles selected from the group consisting of sand, gravel, split, aluminum silicate, corundum and nickel oxide, graywacke, quartzite, cordierite,

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calcium/magnesium oxide, dolomite, calcite, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof in the fluidized bed pyrolysis reactor of Deglise et al. which is analogous to the reactor of Meunier would be obvious to one of ordinary skill in the art, because it would amount to nothing more than a use of a known heat carrier medium for its intended use in a known environment to accomplish entirely expected result.

13. Claims 56-58 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362) in view of Olsen et al. (Unit Processes And Principles Of Chemical Engineering), as applied to claims 55 and 59 above, and further in view of McIntosh et al. (USP 5,662,052).

Regarding claims 56, Deglise et al. in view of Olsen et al. disclose all of the claim limitations as set forth above. Additionally Deglise et al. discloses that said pyrolysis reactor comprises a fluidized bed reactor (abstract), but the references do not explicitly disclose said pyrolysis reactor includes a moving bed reactor, a rotary drum reactor or combinations thereof.

McIntosh et al. teaches that rotary drum reactors are preferable alternatives to the fluidized bed reactors because they are simpler and offer better control over various process conditions (C1/L31-C2/L40).

It would have been obvious to one having ordinary skill in the art at the time of the invention to replace the fluidized bed pyrolysis reactor of Deglise et al. with a rotary drum reactor of McIntosh et al. for the purpose of simplifying operation and providing better control over various process conditions.

Regarding claims 57-58 and 60, Deglise et al. in view of Olsen et al. and further in view of McIntosh et. disclose the claim limitations as set forth above. Additionally McIntosh et al. discloses that control of the temperature in the pyrolysis reactor allows for control of products

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produced by said pyrolysis reaction (C4/L34-C5/L56). Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to control the temperature of the pyrolysis zone to, among others, temperatures of about 550-650°C for the purpose of improving production of desired products, said optimum process temperature being determined by routine experimentation.

14. Claims 62, 64 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362) in view of Olsen et al. (Unit Processes And Principles Of Chemical Engineering) and in view of McIntosh et al. (USP 5,662,052), as applied to claims 55-61 and 63 above, and further in view of Velcich (USP 5,262,577) or Rudolph et al. (USP 3,738,103).

Regarding claims 62 and 64, Deglise et al. in view of Olsen et al. and further in view of McIntosh et al. disclose all of the claim limitations as set forth above, but the references do not disclose reacting said pyrolysis gases with said reactant in the presence of a catalyst, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, or mixtures thereof.

With respect to Velcich or Rudolph et al. the same comments apply as set forth above.

Regarding claim 70, Deglise et al. in view of Olsen et al., in view of McIntosh et al. and further in view of Velcich or Rudolph et al. disclose all of the claim limitations as set forth above. Additionally Deglise et al. discloses the process further including the steps of:

- dedusting and quenching said pyrolysis gases after said reaction with said reactant (C2/L9-14).

15. Claims 72, 74, 76, 78, 80 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362) in view of Olsen et al. (Unit Processes And Principles Of Chemical Engineering), in view of McIntosh et al. (USP 5,662,052), and further in view of Velcich

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(USP 5,262,577) or Rudolph et al. (USP 3,738,103), as applied to claims 55-64, 70-71, 73, 75, 77, 79 and 81 above, and further in view of Meunier (USP 4,423,558).

Regarding claims 72, 74, 76, 78, 80 and 82, Deglise et al. in view of Olsen et al., in view of McIntosh et al. and further in view of Velcich or Rudolph et al. disclose all of the claim limitations as set forth above. Additionally Deglise et al. discloses that said pyrolysis reactor is analogous to that described in French Patent No. 2,436,954 (C2/L27-36). Meunier belongs to the same patent family as said French Patent. While Deglise et al. discloses that the heat carrier medium comprises refractory particles (abstract) the reference does not explicitly disclose said particles selected from the group consisting of sand, gravel, split, aluminum silicate, corundum and nickel oxide, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof.

With respect to Meunier the same comments apply as set forth above.

16. Claim 92 and 100 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362), as applied to claim 91 above, and further in view of McIntosh et al. (USP 5,662,052).

Regarding claims 92 and 100, Deglise et al. discloses all of the claim limitations as set forth above. Additionally Deglise et al. discloses that said pyrolysis reactor comprises a fluidized bed reactor (abstract), but the references do not explicitly disclose said pyrolysis reactor includes a moving bed reactor, a rotary drum reactor or combinations thereof, wherein said pyrolysis is carried out at temperature of about 550-650°C.

With respect to McIntosh et al. the same comments apply as set forth above.

17. Claims 97 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362), as applied to claim 91 above, and further in view of Velcich (USP

5,262,577) or Rudolph et al. (USP 3,738,103).

Regarding claims 97 and 104, Deglise et al. discloses all of the claim limitations as set forth above, but the references do not disclose reacting said pyrolysis gases with said reactant in the presence of a catalyst, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, or mixtures thereof.

With respect to Velcich or Rudolph et al. the same comments apply as set forth above.

18. Claims 108-109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deglise et al. (USP 4,568,362), as applied to claim 91 above, and further in view of Meunier (USP 4,423,558).

Regarding claims 108-109, Deglise et al. discloses all of the claim limitations as set forth above. Additionally Deglise et al. discloses that said pyrolysis reactor is analogous to that described in French Patent No. 2,436,954 (C2/L27-36). Meunier belongs to the same patent family as said French Patent. While Deglise et al. discloses that the heat carrier medium comprises refractory particles (abstract) the reference does not explicitly disclose said particles selected from the group consisting of sand, gravel, split, aluminum silicate, corundum and nickel oxide, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof.

With respect to Meunier the same comments apply as set forth above.

19. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made

in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Response to Arguments

20. Applicant's arguments filed on 13 August 2004 have been fully considered but they are not persuasive.

21. Applicant argues that the claim limitation: "maintaining the organic substances and/or mixtures in contact with a heat carrier medium so that rapid pyrolysis takes place to at least partially cause said organic substances and/or mixtures to react into pyrolysis products" is supported by P3/L24-26 of specification which discloses that not all organic substances must be gasified, but a portion may only be gasified. This is not found persuasive. The cited portion of the specification states: "With the method according to the invention, basically all organic substances and substance mixtures can be gasified. However, it is preferable to gasify biomass." While said citation discloses types of organic substances which can be used in disclosed process, including preferred substances, such as biomass, it is silent as to degree of gasification which occurs in the pyrolysis zone, therefore, said citation does not provide support for above claim language which encompasses partial pyrolysis of organic substances.

22. Applicant argues that the claim limitation: "feeding a majority of said solid residue and the solid heat carrier medium into a firing in which said solid residue containing carbon is fired to at least partially form a waste gas and ash" is supported by P9/L5-8 of specification which discloses that a majority of the mixture is returned to the shaft kiln. This is not found persuasive. The pertinent part of specification (P8/L22-P9/9) defines a shaft kiln 403 in which material 401 is pyrolyzed by heat from heat carrier medium 414. At the lower end of the shaft kiln 403 the heat carrier medium 414 and pyrolysis coke 426 is fed onto grate of firing 407. The majority of the

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mixture leaving the firing 407 is returned to the shaft kiln 403. Therefore, while P9/L5-8 discloses that majority of the heat carrier leaving the firing is returned to the shaft kiln, it does not provide support for above claim language.

23. Applicant argues that the claim limitation: “said solid residue containing carbon is fired to at least partially form a waste gas and ash” is supported by P9/L17-20 of specification which discloses other products that are formed in the shaft kiln. This is not found persuasive. As set forth above, the shaft kiln, in which organic substances are pyrolyzed is different from the firing, in which pyrolysis coke burns heating the heat carrier medium

24. Applicant’s statement that “examiner stated that claims 81 and 82 are directed to the same invention” is not clear because the examiner has not made such a statement. The examiner has, however, stated that claims 81 and 82 are substantial duplicates of claims 55 and 80, respectively. The claims 81 and 82 recite “wherein heat exchanger includes an indirect heat exchanger” and both claims directly or indirectly depend from claim 55, which recites “a second reaction zone that is heated by an indirect heat exchanger”. Therefore claims 55 and 81 are so close in content that they both cover the same thing, despite a slight difference in wording. The same is true for claims 80 and 82, which are so close in content that they both cover the same thing, despite a slight difference in wording.

25. The applicant argues that Deglise et al. is absent any teachings concerning the use of a solid heat carrier medium that is circulated within the process used to gasify organic materials, and that only material that is circulated in the process of Deglise et al. is an organic material traveling through lines 8, 14 and 24. This is not found persuasive.

Regarding claims 55-64 and 70-82, it is noted that the features upon which applicant relies (i.e., circulation of heat carrier medium within the process used to gasify organic materials) are not

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recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). While said claims recite that organic substances in the pyrolysis reactor are maintained in contact with solid heat carrier medium and that said heat carrier medium is feed into a firing, the claim does not recite said solid heat carrier medium being circulated in the process. Deglise et al. discloses that organic substances in the fluidized bed pyrolysis reactor (7) are maintained in contact with heat carrier medium (refractory particles), see e.g. C3/L27-32. Further Deglise et al. discloses that said heat carrier medium is feed into a firing (combustion reactor (24)), see e.g. C3/L66-C4/L5.

Regarding claims 91-95, 97 and 100-109, in addition to the disclosure as set forth above, Deglise et al. further discloses that the refractory particles heated in the combustion reactor (24) are supplied to the packed bed (9) and to the fluidized bed pyrolysis reactor (7), see e.g. abstract. Therefore Deglise et al. clearly discloses solid heat carrier medium comprising refractory particles which is being circulated within the process used to gasify organic materials between the pyrolysis reactor (7) and the firing (24).

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the

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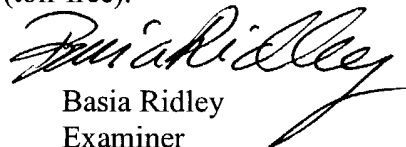
date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Technical Center 1700 General Information Telephone No. is (571) 272-1700. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).



Basia Ridley
Examiner
Art Unit 1764

BR

November 15, 2004